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REMARKS

The Applicant appreciates the thorough review of the application by the Examiner, as well as the interview kindly granted to Robert Gibson and Clifford Hyra on November 8, 2006.

In the interview, Applicant explained that the particular sensor material disclosed in the application has myriad benefits, as described in the Specification, not disclosed in any prior art. Applicant also explained that the references do not operate in the same way or under the same conditions as the present invention and suggested language to make these limitations clear in the claims. The Examiner indicated that an amendment to Claims 6 and 7 placing them in independent form and showing unexpected results would be considered. Examiner also noted that any amendment to claim 1 regarding a specific mode of operation would impute structural limitations that could overcome the references.

Reconsideration and allowance are requested.

No new matter has been added by the amendments. No new issues are raised by the amendments.

Claims 1 - 13 are patentable under 35 U.S.C. 103(a) over Petit (US 5,447,705) in view of Clifford (US 4,542,640).

Claims 1 - 13 are patentable over Petit in view of Clifford.

The combination of Petit and Clifford would not teach or suggest all of the elements of Claim 1. Neither reference teaches or suggests the particular perovskite formula claimed. This formula is critical because "the compositions are not prone to the formation of sulfates as stable as SrSO_4 and BaSO_4 , and therefore can be used in atmospheres where there is some

contamination by sulfur gases." (Specification, page 5, lines 1-3) Neither reference teaches or suggests such a feature and there is no prior art suggesting that a particular perovskite structure will achieve this. The selection of this formula would not have been obvious. Because no references, singly or in combination, teach or suggest all of the elements of Claim 1, Claim 1 is patentable under 35 U.S.C. 103(a) over Petit in view of Clifford.

Claims 4 - 11 are dependent on independent and patentable Claim 1, and have additional patentable features. Claim 4 claims a composition range in which the defect structure of the oxide is optimized. No reference teaches or suggests this range.

Claim 6 adds that the perovskite structure is $\text{PrFe}_{0.95}\text{W}_{0.05}\text{O}_x$. Claim 7 adds that the perovskite structure is $\text{LaFe}_{0.95}\text{W}_{0.05}\text{O}_x$. Claim 8 adds that the perovskite structure does not form stable sulfates in environments contaminated by sulfur. Claim 9 adds that minimum doping on the B-site provides a required range of oxygen partial pressure operation. Claim 10 adds a 6-valent ion for doping on the B-site. Claim 11 adds that the 6-valent ion enables a p-type range of the perovskite structure for use over a range of oxygen partial pressures of interest for monitoring and controlling the combustion processes. Therefore Claims 4 - 11 are patentable under 35 U.S.C. 103(a) over Petit in view of Clifford.

Independent Claim 12 is patentable over Petit in view of Clifford because neither reference teaches or suggests all of the elements of the claim. Clifford does teach a sensor that is screen-printed on a substrate, but it does not teach or suggest reacting starting material oxides in stoichiometric proportions in a molten salt, yielding a powder, screen-printing the powder on a substrate, or forming a microstructure. Therefore, Claim 12 is patentable under 35 U.S.C. 103(a) over Petit in view of Clifford.

Independent Claim 13 is patentable over Petit in view of Clifford because neither reference teaches or suggests all of the elements of the claim. Examiner asserts that Clifford teaches plotting the resistance of the sensor to monitor and control combustion processes in response to a received signal. However, Applicant is unable to find the parts of the reference referred to. Applicant requests that Examiner provide the column and line numbers of the relevant sections. Clifford does not teach or suggest a method of sensing combustion status of an atmosphere of combustion gases at all, nor does it teach or suggest a method that monitors and controls combustion processes responsive to change sense in a sensor material.

Furthermore, obviousness is tested by what the combined teachings of the references would have suggested to those of ordinary skill in the art. It cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Teachings of references can be combined only if there is some suggestion or incentive to do so. "It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." *In re Fritch*, 23 USPQ2d 1783, 1784 (Fed. Cir. 1992), quoting from *In re Gorman*, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

Although the Petit catalyst could be used in the Clifford gas sensor, neither reference suggests that doing so would be desirable. Clifford teaches the use of any of 14 types of sensors and Petit teaches away from the combination of the two references because it states that the purpose of the catalyst is partial oxidation of methane. The motivation for using a perovskite structure is found only in the present application.

Therefore, Claims 1 - 13 are patentable under 35 U.S.C. 103(a) over Petit in view of Clifford.

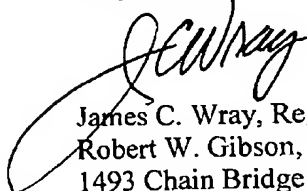
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CONCLUSION

Reconsideration and allowance are respectfully requested.

Respectfully,



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